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Title: Private Cloud

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Private Cloud

Why Los Alamos implemented and continues to utilize a private cloud for on premises computing.



Keith Morgan, Ryan Iverson
and Kory Wegmeyer
11/16/2018

Infrastructure on Demand

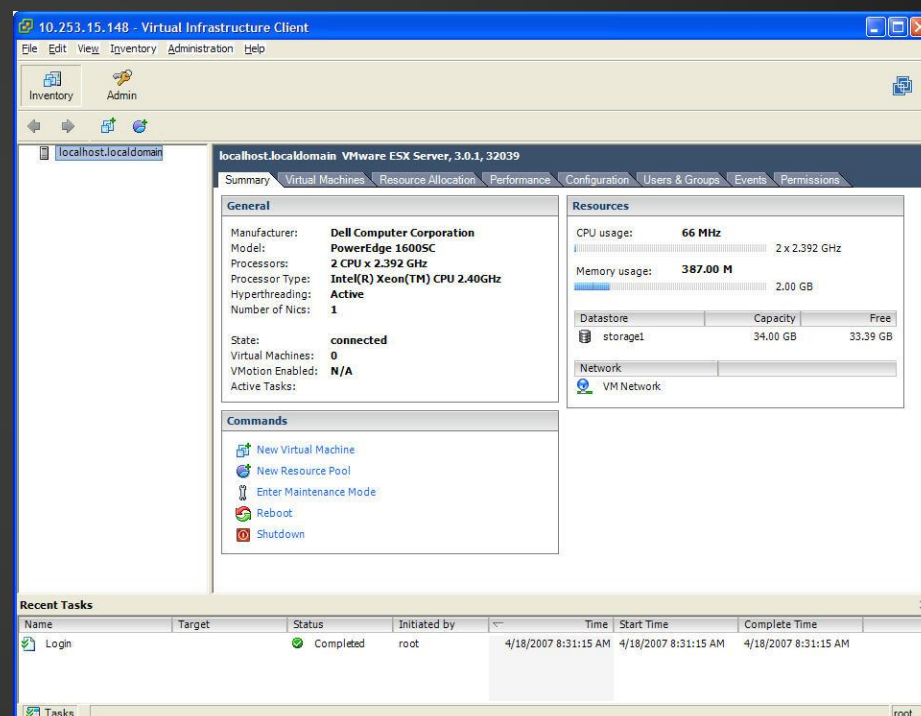
- “Private Cloud”
 - On premises compute and storage
 - Compute
 - Virtual Machines
 - Storage
 - Disks for the VMs
 - Application storage
- Multi Datacenter design
 - COOP/DR

Why Virtualize?

- Better utilization of resources.
- Easy Hardware Refresh with no downtime.
- Move HW management away from OS admins.
- Automatic recovery in case of host failure.
- Full backups of VMs.
- Allows for easier DR/COOP

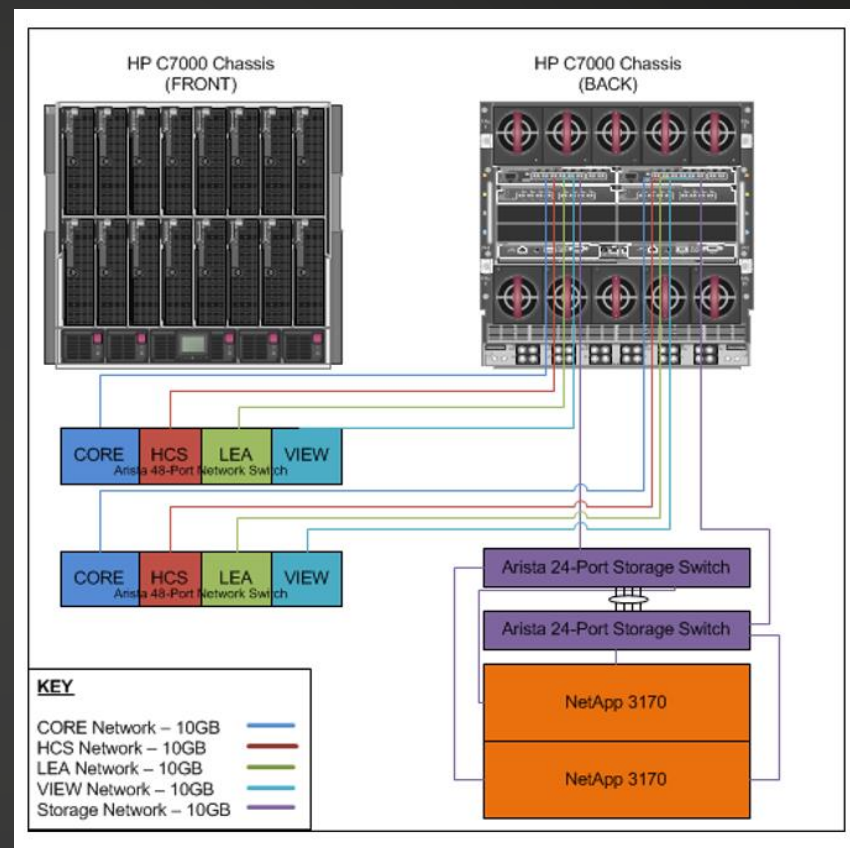
Brief History

- Version 1
 - 2007
- ESX 3.x
- HP DL585 rackmount servers
- HP EVA with FC LUNS
- User interface is a “thick” client



Brief History

- Version 2
 - Late 2010
- HP C7000 blade enclosures
- NetApp NFS Storage
- 10Gbps / Enclosure – Storage
- 10Gbps / Enclosure – VM Traffic
- Separate Network connections based on security plan
- Dedicated Public and Private Arista switches



IoD Today

- Version 2.5
 - vSphere 6.5
 - Consolidated Network Links
 - C7000/Blades
 - > 42 TB Memory
 - > 2600 Cores
 - NetApp SnapMirror Replication
 - Custom Work Intake API

IoD Tomorrow

- Version 3
- New HPE Synergy Compute
 - 81 TB Memory
 - 5200 Cores
- 120 Gbps / Rack - Storage
- 120 Gbps / Rack – VM Traffic



Thank you for your time.